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EXAMINER				
MINSKEY, JACOB T				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/553,358

Applicant(s)

AHLGREN ET AL.

Examiner

JACOB T. MINSKEY

Art Unit

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-31, 35 and 36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-31, 35 and 36 is/are rejected.
- 7) ☒ Claim(s) 13 and 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. The Examiner acknowledges the response filed 01/21/2009 in which claims 1 and 32-34 have been canceled, claims 35 and 36 have been added, and claims 2-31 have been amended.

Response to Arguments

2. The objections of claims 7-31 due to improper multiple dependency and minor informalities are withdrawn due to amendments of these claims.

3. Applicant's arguments with respect to claims 1-6 and 32-34 have been considered but are moot in view of the new ground(s) of rejection.

4. Applicant respectfully traverses the obvious rejections of claims 1-6 and 32, and has amended the claims for reconsideration, and argues that neither Freeman et al (USP 5,551,975) nor Satterfield et al (USP 5,755,930) discloses the claimed process.

5. Applicant argues that neither of the references teaches the step of treating the stock with a cationic retention agent, and that Freeman only teaches the pretreatment of the filler and not of the stock solution. Applicant has amended the claimed limitations to a cationic polymer with a molecular weight of at least 500,000 g/mol. This new limitation will be addressed in the following examination of the newly amended claims.

6. Applicant argues that the remaining claims all lack the same teaching as the dependent claim discussed above, and the newly added claims include the same new

limitations. The newly added limitations are cause for the new grounds of rejection in the proceeding sections.

Claim Objections

7. Claim 13 is objected to because of the following informalities: the entire claim is not present in the amended claims provided on 1/21/2009. For the purpose of further examination, the Examiner is reading all the limitations of claim 13 as originally filed with the exception that claim's proper dependency. Appropriate correction is required.
8. Claim 29 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitation that the anionic colloidal particles used must be either identical or different than the inorganic colloidal particles used for pre-treatment. These are the only two options and does not further limit the parent claim due to the fact that all limitations are inherently met in the parent.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 8-10, 12-13, 14, 19, 20-21, 23-24, 28-29, and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
11. Regarding claims 8-10, 12-13, 14, 19, 20-21, 23-24, 28-29, and 31, the phrases "preferably" and "advantageously" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d). For the purpose of examination all "preferable" limitations have not been examined.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
15. Claims 1-4, 6, 8-19, and 21-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman et al, USP 5,551,975 in view of Greenwood et al, US Patent Publication 2003/0066617.
16. Regarding claim 35, Freeman teaches a process for manufacturing of paper (column 2 lines 45-53), characterized in that a clay filler is pre-treated with inorganic colloidal particles (liquid colloidal silicas, column 3 line 67) having an average particle size in water less than 100 nm (7 nm, column 4 lines 9-11) and suspended to form an aqueous slurry (column 4 lines 17-19), the aqueous slurry obtained is combined with an aqueous suspension containing cellulose fibers to form a stock (column 6 lines 36).
17. Freeman does not explicitly teach treating the formed stock at least with a cationic retention agent which is a cationic polymer having a molecular weight of at least 500,000 g/mol, and filtering and drying the treated stock to form said paper.

18. In the same field of endeavor of treating paper with retention agents, Greenwood teaches the addition of a cationic polymer (preferably cationic starch or polyacrylamide [0026]) that preferably has a molecular weight of above 2,000,000 [0026] to the stock (components can be added in any order [0028]) as a retention agent [0026] for the act of papermaking (see abstract). The further papermaking steps of filtering and drying the stock to form paper is well known in the art and is taught by the generic descriptions of papermaking in the background section of Greenwood (water draining, dewatering on a wire, and drying in ad paper machine [0002]).

19. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine use of a high molecular weight retention agent in the stock slurry as taught by Greenwood in the Freeman method for the benefit of providing a final paper that contains large retention and strength additives for a stronger paper with less material loss.

20. Regarding claim 2, Freeman further teaches that the filler is treated with inorganic colloidal particles (liquid colloidal silicas, column 3 line 67) so that the surface of the filler particles will at least partly consist of inorganic colloidal particles (surface modified slurry, column 2 line 8).

21. Regarding claim 3, Freeman further teaches that the filler is pre-treated with inorganic anionic colloidal particles (liquid colloidal silicas, column 3 line 67).

22. Regarding claim 4, Freeman remains as applied in claim 3 and further teaches that the anionic colloidal particles consist of synthetic silicate (sodium aluminosilicates (SAMS), column 6 line 50) and/or hectorite.

23. Regarding claim 6, Freeman remains as applied in claim 3 and further teaches that the anionic colloidal particles consist of colloidal silica sol and/or polysilicic acid (liquid colloidal silicas, column 3 line 67).
24. Regarding claim 8, Freeman further teaches that the inorganic colloidal particles have an average particle diameter in the range 'of 1-80 nm, preferably in the range of 1-50 nm, most advantageously in the range of 30 1-25 nm (7-22nm, column 4 line 9).
25. Regarding claim 9, Freeman further teaches that the powder formed of inorganic colloidal particles has a specific area (BET) in the range of 30-1,000 g2/g, preferably in the range of 100-1,000 m2/g (see figure 1 c with examples of 140-360 m2/g).
26. Regarding claims 10 and 13, Freeman further teaches that the filler is pre-treated with inorganic colloidal particles in an amount varying in the range of 50-10,000 g/t (.25kg/t-1 kg/t, Table I and [0070]).
27. Regarding claims 11 and 12, Freeman further teaches the addition of all the pretreated filler (as shown in example 1) and also that the pre-treated filler can be combined with non-treated filler is added to the slurries used in paper making (column 6 lines 20-37). It would have been obvious to one of ordinary skill in the art at the time of the invention that the non-treated filler can be added directly to the cellulose slurry and that a mixture of treated and non-treated filler can be added to the slurry to give similar results.
28. Regarding claim 14, Freeman further teaches that the filler is treated by combining a slurry or a sol of inorganic colloidal particles and a filler slurry (column 4 lines 61-64).

29. Regarding claim 15, Freeman further teaches that the slurry or sol of inorganic colloidal particles has a concentration of 0.5-30%, preferably 1-10% (5-50% column 3 line 67).

30. Regarding claims 16-18, Freeman further teaches that the filler is an inorganic particulate substance (kaolin clay, column 3 line 51 and TiO_2 , column 5 lines 49-56).

31. Regarding claim 19, Freeman further teaches that the TiO_2 has an average particle diameter in the range of 150-350 nm (.2-.3 microns which equals 200-300 nm, column 5 line 45).

32. Regarding claim 21, Freeman further teaches that the total amount of filler accounts for 10-60% (column 4 lines 17-24 and an example of 55% is given in column 7 line 26).

33. Regarding claim 22, Greenwood further teaches that the cellulose aqueous suspension originates from chemical, mechanical or chemo-mechanical pulp, recycled fibers or a mixture of these [0034].

34. Regarding claim 23, Greenwood further teaches that the aqueous suspension of cellulose has a consistency in the range of 1-50 g/l (example 20: 1.5 g/l [0072]).

35. Regarding claims 24 and 28, Greenwood is silent on a stock with a consistency of 3-20 g/l. The claimed consistency is a typical range of values in the papermaking industry. Greenwood does teach a stock with a consistency of 0.29% (2.9 g/l) in example 19, which would round up to the lower endpoint of 3 g/l. The consistency of the stock is a result effective variable depending on the amount of water added to the slurry. It would have been obvious to one having ordinary skill in the art at the time of

the invention to adjust the amount of water added to the slurry, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. One would have been motivated to utilize a slurry with less water content for the benefit of producing pulp with a higher concentration of fillers and retention adds to provide an end product with higher retention and less material waste.

36. Regarding claims 25-27, Greenwood further teaches that the cationic polymer (preferably cationic starch, polyacrylamide, and co polymers of acrylamides [0026]) that has a molecular weight of above 2,000,000 [0026]. Greenwood explicitly teaches copolymers based on diallyldimethyl ammonium chloride, (meth)acrylamides and (meth)acrylates [0026] and gives a list of usable amines to be combined as part of the cationic polymer [0009-0010]. It would have been within the ability of one of ordinary skill in the art to select a copolymer of acrylamide and acryloyloxyethyltrimethyl ammonium chloride based on the teachings provided by Greenwood in [0009-0010].

37. Regarding claim 29, Freeman and Greenwood remain as applied in claim 35 because the anionic colloidal particles used must be either identical or different than the inorganic colloidal particles used for pre-treatment.

38. Regarding claim 30, Freeman and Greenwood remain as applied in claim 35 and while neither explicitly teaches the use of filtering through steel wire, both teach that common papermaking processes can be used in the production of the paper product. The use of filtration through steel wire is use of a known technique to improve similar devices (methods, or products) in the same way, which is within the ability of one of ordinary skill in the art.

39. Regarding claim 31, Greenwood further teaches the addition of other paper-improving agents [0033].

40. Claims 5, 7, 20, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman et al, SP 5,551,975 in view of Greenwood et al, US Patent Publication 2003/0066617, and in further view of Neivandt et al, US Patent Publication 2005/0150621.

41. Regarding claim 5, Freeman and Greenwood remains as applied in claim 3, but does not explicitly teach that the anionic colloidal particles consist of smectite or montmorillonite-based (bentonite) silicate.

42. In the same field of endeavor of treating pulp fillers, Neivandt et al teach that the anionic colloidal particles consist of smectite or montmorillonite-based (bentonite) silicate (montmorillonite and bentonite, [0026]) for the benefit of providing an anionic inorganic colloid to increase the retention of the paper manufacturing.

43. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Neivandt's use of bentonite as the anionic colloid in the Freeman/Satterfield method for the benefit of providing an anionic inorganic colloid to increase the retention of the paper manufacturing.

44. Regarding claim 7, Freeman and Greenwood remains as applied in claim 3, but does not explicitly teach the synthetic silicate having magnesium as the predominant metal.

45. In the same field of endeavor of treating pulp fillers, Neivandt et al teach that the synthetic silicate having magnesium as the predominant metal (talc, [0024]) for the

benefit of providing magnesium based inorganic colloid to increase the retention of the paper manufacturing.

46. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Neivandt's use of bentonite as the anionic colloid in the previous combination for the benefit of providing magnesium based inorganic colloid to increase the retention of the paper manufacturing.

47. Regarding claim 20, Neivandt further teaches that the fillers account for 5-30% of the total paper weight [0024].

48. Regarding claim 36, Freeman teaches a process for manufacturing of paper (column 2 lines 45-53), characterized in that titanium dioxide (column 5 line 45) is pre-treated with inorganic colloidal particles (liquid colloidal silicas, column 3 line 67); suspending the pre-treated filler to form an aqueous slurry (column 4 lines 17-19), the aqueous slurry obtained is combined with an aqueous suspension containing cellulose fibers to form a stock (column 6 lines 36) in which the colloidal metal silicate is a synthetic silicate (sodium aluminosilicates (SAMS), column 6 line 50) with an average particle diameter in the range of 1-25 nm (7-22nm, column 4 line 9).

49. Freeman does not explicitly teach treating the formed stock at least with a cationic retention agent which is a cationic polymer having a molecular weight of at least 500,000 g/mol, and filtering and drying the treated stock to form said paper.

50. In the same field of endeavor of treating paper with retention agents, Greenwood teaches the addition of a cationic polymer (preferably cationic starch or polyacrylamide [0026]) that preferably has a molecular weight of above 2,000,000 [0026] to the stock

(components can be added in any order [0028]) as a retention agent [0026] for the act of papermaking (see abstract). The further papermaking steps of filtering and drying the stock to form paper is well known in the art and is taught by the generic descriptions of papermaking in the background section of Greenwood (water draining, dewatering on a wire, and drying in a paper machine [0002]).

51. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine use of a high molecular weight retention agent in the stock slurry as taught by Greenwood in the Freeman method for the benefit of providing a final paper that contains large retention and strength additives for a stronger paper with less material loss.

52. Freeman and Greenwood do not explicitly teach the synthetic silicate having magnesium as the predominant metal.

53. In the same field of endeavor of treating pulp fillers, Neivandt et al teach that the synthetic silicate having magnesium as the predominant metal (talc, [0024]) for the benefit of providing magnesium based inorganic colloid to increase the retention of the paper manufacturing.

54. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Neivandt's use of bentonite as the anionic colloid in the previous combination for the benefit of providing magnesium based inorganic colloid to increase the retention of the paper manufacturing.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JACOB T. MINSKEY whose telephone number is (571)270-7003. The examiner can normally be reached on Monday to Friday 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JTM

/Eric Hug/
Primary Examiner, Art Unit 1791